



INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification ⁷ :

B60S 1/38

A1

(11) International Publication Number:

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(43) International Publication Date:

20 April 2000 (20.04.00)

(21) International Application Number: PCT/IB99/01565

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ZA

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(72) Inventor; and

(75) Inventor/Applicant (for US only): FEHRSEN, Johannes, Hendrik [ZA/ZA]; 20A Meyer Street, Oaklands, 2192 Johannesburg (ZA).

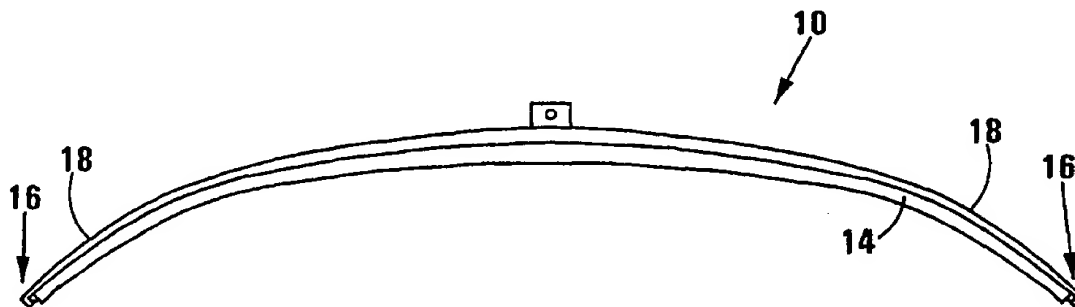
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(81) Designated States: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).

Published

With international search report.

(54) Title: A WINDSCREEN WIPER



(57) Abstract

A windscreen wiper (10) includes a unitary elongate curved backbone in the form of a beam (18) and a rubber wiper blade (14). The beam (18) has a protective end formation (16) at each of its tips (18). The end formation (16) may be in the form of an extension to the beam (18), or it may be a separate cap of a synthetic plastics material which fits on the wiper blade tip. The application also relates to a protective end fitting for a unitary curved windscreen wiper.

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INTERNATIONAL SEARCH REPORT

onal Application No

PCT/IB 99/01565

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 B60S1/38

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 B60S

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 88 05004 A (SWF AUTO ELECTRIC GMBH) 14 July 1988 (1988-07-14)	1-4, 8,
Y	abstract; claim 1; figures page 1, line 18 - line 31	11, 12 5-7, 9
X	GB 2 102 281 A (FISTER SPA) 2 February 1983 (1983-02-02)	10
Y	abstract; claims 1,2; figures	6
Y	US 3 881 214 A (PALU ATTILIO DAL) 6 May 1975 (1975-05-06)	5
A	abstract; claims; figures column 2, line 49 -column 4, line 14	1, 10
Y	EP 0 594 451 A (ANGLO AMERICAN IND CORP LTD) 27 April 1994 (1994-04-27)	7
A	abstract; claim 1; figures 1-3 page 3, line 22 - line 32	1, 8
-/--		

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

* Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

Date of the actual completion of the international search

3 December 1999

Date of mailing of the international search report

10/12/1999

Name and mailing address of the ISA

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Fax: (+31-70) 340-3016

Authorized officer

Westland, P

INTERNATIONAL SEARCH REPORT

onal Application No

PCT/IB 99/01565

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	DE 196 51 229 A (VALEO SYSTEMES ESSUYAGE) 3 July 1997 (1997-07-03) abstract; figures column 2, line 30 -column 3, line 15 ----	9
X	DE 25 04 453 A (SWF) 5 August 1976 (1976-08-05) claims 1,5; figures page 3, line 28 - line 31 page 5, line 14 - line 16 ----	1,2
A	US 3 785 002 A (QUINLAN W ET AL) 15 January 1974 (1974-01-15) abstract; figures column 3, line 54 - line 67 ----	1,2,10
X,P	DE 198 02 451 A (ROBERT BOSCH GMBH) 29 July 1999 (1999-07-29) abstract; claims 1-4; figures 1-5 column 1, line 52 - line 63 column 3, line 48 -column 5, line 6 -----	1,2,6-8, 10

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/IB 99/01565

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
WO 8805004	A	14-07-1988	DE 3644427 A	07-07-1988
GB 2102281	A	02-02-1983	FR 2510500 A	04-02-1983
US 3881214	A	06-05-1975	IT 985855 B	20-12-1974
			IT 968324 B	20-03-1974
			DE 2344876 A	14-03-1974
			FR 2199302 A	05-04-1974
			GB 1438568 A	09-06-1976
			JP 49092726 A	04-09-1974
			YU 213873 A,B	28-02-1981
EP 0594451	A	27-04-1994	DE 69303250 D	25-07-1996
			DE 69303250 T	07-11-1996
			ES 2088236 T	01-08-1996
			JP 2812651 B	22-10-1998
			JP 6340249 A	13-12-1994
			US 5485650 A	23-01-1996
			ZA 9307792 A	16-05-1994
DE 19651229	A	03-07-1997	FR 2743041 A	04-07-1997
DE 2504453	A	05-08-1976	NONE	
US 3785002	A	15-01-1974	NONE	
DE 19802451	A	29-07-1999	NONE	

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference F14563IN	FOR FURTHER ACTION see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below.	
International application No. PCT/IB 99/ 01565	International filing date (day/month/year) 22/09/1999	(Earliest) Priority Date (day/month/year) 12/10/1998
Applicant TRICO PRODUCTS CORPORATION et al.		

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 4 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

1. Basis of the report

- a. With regard to the **language**, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ the international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

- b. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international search was carried out on the basis of the sequence listing :

☐ contained in the international application in written form.

☐ filed together with the international application in computer readable form.

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☐ furnished subsequently to this Authority in computer readable form.

☐ the statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.

☐ the statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished

2. ☐ **Certain claims were found unsearchable** (See Box I).

3. ☐ **Unity of Invention is lacking** (see Box II).

4. With regard to the **title**,

☒ the text is approved as submitted by the applicant.

☐ the text has been established by this Authority to read as follows:

5. With regard to the **abstract**,

☐ the text is approved as submitted by the applicant.

☒ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. The figure of the **drawings** to be published with the abstract is Figure No.

☒ as suggested by the applicant.

☐ because the applicant failed to suggest a figure.

☐ because this figure better characterizes the invention.

1 _____
☐ None of the figures.

Box III TEXT OF THE ABSTRACT (Continuation of item 5 of the first sheet)

A windscreen wiper (10) includes a unitary elongate curved backbone in the form of a beam (18) and a rubber wiper blade (14). The beam (18) has a protective end formation (16) at each of its tips (18). The end formation (16) may be in the form of an extension to the beam (18), or it may be a separate cap of a synthetic plastics material which fits on the wiper blade tip. The application also relates to a protective end fitting for a unitary curved windscreen wiper.

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International Application No

PCT/IB 99/01565

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IPC 7 B60S1/38

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B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 B60S

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 88 05004 A (SWF AUTO ELECTRIC GMBH) 14 July 1988 (1988-07-14)	1-4, 8, 11, 12
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A	abstract; claim 1; figures 1-3 page 3, line 22 - line 32 ---	1, 8
	--- -/--	

☒ Further documents are listed in the continuation of box C.☒ Patent family members are listed in annex.

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"&" document member of the same patent family

Date of the actual completion of the international search

3 December 1999

Date of mailing of the international search report

10/12/1999

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
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Fax: (+31-70) 340-3016

Authorized officer

Westland, P

INTERNATIONAL SEARCH REPORT

International Application No

PCT/IB 99/01565

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
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INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No



PCT/IB 99/01565

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
WO 8805004	A	14-07-1988	DE 3644427 A	07-07-1988
GB 2102281	A	02-02-1983	FR 2510500 A	04-02-1983
US 3881214	A	06-05-1975	IT 985855 B	20-12-1974
			IT 968324 B	20-03-1974
			DE 2344876 A	14-03-1974
			FR 2199302 A	05-04-1974
			GB 1438568 A	09-06-1976
			JP 49092726 A	04-09-1974
			YU 213873 A,B	28-02-1981
EP 0594451	A	27-04-1994	DE 69303250 D	25-07-1996
			DE 69303250 T	07-11-1996
			ES 2088236 T	01-08-1996
			JP 2812651 B	22-10-1998
			JP 6340249 A	13-12-1994
			US 5485650 A	23-01-1996
			ZA 9307792 A	16-05-1994
DE 19651229	A	03-07-1997	FR 2743041 A	04-07-1997
DE 2504453	A	05-08-1976	NONE	
US 3785002	A	15-01-1974	NONE	
DE 19802451	A	29-07-1999	NONE	

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference F145631N/vd	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/IB99/01565	International filing date (day/month/year) 22/09/1999	Priority date (day/month/year) 12/10/1998
International Patent Classification (IPC) or national classification and IPC B60S1/38		
Applicant TRICO PRODUCTS CORPORATION et al.		
<p>1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of 5 sheets, including this cover sheet.</p> <p><input checked="" type="checkbox"/> This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).</p> <p>These annexes consist of a total of 1 sheets.</p>		
<p>3. This report contains indications relating to the following items:</p> <p>I <input checked="" type="checkbox"/> Basis of the report</p> <p>II <input type="checkbox"/> Priority</p> <p>III <input type="checkbox"/> Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</p> <p>IV <input type="checkbox"/> Lack of unity of invention</p> <p>V <input checked="" type="checkbox"/> Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</p> <p>VI <input type="checkbox"/> Certain documents cited</p> <p>VII <input checked="" type="checkbox"/> Certain defects in the international application</p> <p>VIII <input checked="" type="checkbox"/> Certain observations on the international application</p>		
Date of submission of the demand 12/05/2000	Date of completion of this report 12.12.2000	
Name and mailing address of the international preliminary examining authority:  European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	Authorized officer Durand-Smet, J Telephone No. +49 89 2399 8881 	

I. Basis of the report

1. This report has been drawn on the basis of *(substitute sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to the report since they do not contain amendments (Rules 70.16 and 70.17).):*

Description, pages:

1-4 as originally filed

Claims, No.:

1-7 as received on 22/09/2000 with letter of 22/09/2000

Drawings, sheets:

1/1 as originally filed

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:
- ☐ the claims, Nos.:

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**

International application No. PCT/IB99/01565

☐ the drawings, sheets:

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)):

(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)

6. Additional observations, if necessary:

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims 1-7
	No: Claims
Inventive step (IS)	Yes: Claims 1-7
	No: Claims
Industrial applicability (IA)	Yes: Claims 1-7
	No: Claims

2. Citations and explanations
see separate sheet

VII. Certain defects in the international application

The following defects in the form or contents of the international application have been noted:
see separate sheet

VIII. Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:
see separate sheet

To item V:

1. It is already known from **WO-A-88/05 004** or from **US-A-3 881 214** to provide a windscreen wiper which includes a unitary elongate curved beam and a rubber blade mounted to the beam, the beam having a protective end formation at at least one of its lips. Furthermore, the end formation comprises an end portion of the beam, which projects beyond an end portion of the rubber blade.
2. In the windscreen wiper disclosed in **WO-A-88/05 004**, the curved beam is made of resilient plastics material. Therefore, the protective end formations of the curved beam disclosed therein cannot comprise a deformed end portion.

Similarly, in the windscreen wiper disclosed in **US-A-3 881 214**, the supporting structure (1) defining protruding portions (25) does not seem to be made of metal, because a cylindrical convex surface (18) is formed on a projecting portion of the supporting structure (1) and because the supporting structure (1) is formed with inner reliefs or recesses (21) by removing some material from the supporting structure (1). Therefore, one can assume that this supporting structure should have been formed by means of injection moulding, so that the protruding portions (25) integral therewith should have been formed by moulding, but not by deformation.

3. According to the claimed invention, the protective end formations are made by deformation, which facilitates manufacture thereof and increases the efficacy of the protective end portions.

As there is no suggestion to a skilled person among the other cited prior art documents to have the end portions of the beam of the windscreen wiper disclosed in **WO-A-88/05 004** or **US-A-3 881 214** obtained by deformation, the subject-matter of claim 1 seems to be novel and inventive under the terms of article 33 (1) to (3) PCT.

4. Further developments in line with the invention according to claim 1 are referred to in the dependent claims 2 to 7. Therefore, their subject-matters seem also to be novel and inventive.

To items VII and VIII:

1. The following observations are made to claim 1:
 - 1.1. The indication that *"the end formation comprises an end portion of the beam, which projects beyond an end portion of the rubber blade"* should be transferred into the precharacterising portion of claim 1 for compliance with article 6 PCT and rule 6.3 (b) i), ii) PCT, see paragraph 1. above.
 - 1.2. The embodiment described in connection with figures 2 to 4 of the present PCT-application falls outside the subject-matter covered by claim 1 having due regard to the protective end fitting which is moulded and which comprises a synthetic material, without being either deformed or projecting beyond an end portion of the wiper blade. Therefore, as explained in the PCT-Guidelines, chapter III, 4.3, the claims or the description and drawings should be amended such that this inconsistency be removed and thus such that any possible uncertainty could not arise later as to the meaning of the claims.

Jérôme DURAND-SMET

CLAIMS:

1. A windscreen wiper which includes a unitary elongate curved beam, the
85 beam having a protective end formation at at least one of its tips.

2. The windscreen wiper as claimed in Claim 1, in which the beam has a
pair of end formations, one at each tip.

90 3. The windscreen wiper as claimed in Claim 2, in which each of the end
formations includes an extra length of the beam, with the beam mounted to a rubber
so that the extra length projects beyond an end of the rubber.

95 4. The windscreen wiper as claimed in Claim 3, in which each of the extra
lengths is folded so that an end portion thereof extends substantially parallel to an end
surface of the rubber.

5. The windscreen wiper as claimed in Claim 3, in which each of the extra
lengths is folded back on itself.

100 6. The windscreen wiper as claimed in Claim 2, in which each of the
protective end formations includes a cap of a synthetic plastics material which fits
over the tip.

105 7. The windscreen wiper as claimed in Claim 1, in which the curved backbone has
a varying width and thickness, along its length.

8. The windscreen wiper as claimed in Claim 1, in which the backbone has a free form curvature in a plane.

110 9. The windscreen wiper as claimed in Claim 1, in which the backbone has a compound curvature.

10. A protective end fitting for windscreen wiper, which includes a body member having a recess for snugly receiving a tip of a beam.

115

11. A windscreen wiper, substantially as herein described with reference to the accompany drawings.

120 12. A protective end fitting for a windscreen wiper, substantially as herein described with reference to the accompanying drawings.

PATENT COOPERATION TREATY

PCT

NOTIFICATION OF ELECTION

(PCT Rule 61.2)

From the INTERNATIONAL BUREAU

To:

Assistant Commissioner for Patents
 United States Patent and Trademark
 Office
 Box PCT
 Washington, D.C.20231
 ETATS-UNIS D'AMERIQUE

in its capacity as elected Office

Date of mailing (day/month/year)

14 June 2000 (14.06.00)

International application No.

PCT/IB99/01565

Applicant's or agent's file reference

F14563IN

International filing date (day/month/year)

22 September 1999 (22.09.99)

Priority date (day/month/year)

12 October 1998 (12.10.98)

Applicant

FEHRSEN, Johannes, Hendrik

1. The designated Office is hereby notified of its election made:



in the demand filed with the International Preliminary Examining Authority on:

12 May 2000 (12.05.00)



in a notice effecting later election filed with the International Bureau on:

2. The election ☒ was

was not

made before the expiration of 19 months from the priority date or, where Rule 32 applies, within the time limit under Rule 32.2(b).

The International Bureau of WIPO
 34, chemin des Colombettes
 1211 Geneva 20, Switzerland

Facsimile No.: (41-22) 740.14.35

Authorized officer

Pascal Piriou

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